Japanese Unexamined Patent Application Publication H4-310631

TITLE OF THE INVENTION

INFORMATION TRANSMISSION SYSTEM EMPLOYING REWRITABLE OPTICAL DISK

DETAILED DESCRIPTION OF THE INVENTION

[0001]

[Field of Industrial Use]

The present invention relates to an information transmission system employing a rewritable optical disk for recording, replaying, and erasing information with the use of laser light, thereby speedily providing information to a large number of people.

[0002] [Prior Art]

Audio, video and printed matter systems are used as systems for transmitting information to a large number of people. Among them, audio information transmission has an advantage over video images or printed matter in that information can be received in limited space, with simple equipment, and while doing other work. For example, audio information transmission using a radio is the most convenient means for obtaining information such as news in a crowded train or while driving a vehicle.

[0003] [Objects the Invention]

However, radio broadcasting, which is a

conventional audio information transmission system, has suffered from the following disadvantage. That is, it is impossible to select only information on fields in which individual information recipients are interested, and thus, the information is limited to very general topics. Assuming that detailed information is to be included in a broadcast, a large amount of time would be required for one broadcast. From among the information broadcast, the information recipients must wait for a long time until the information that they want to listen to is broadcasted. This situation is inefficient for the recipient. Furthermore, information is sent only at times determined unilaterally, when the broadcast station desires. The information that they listened to cannot be repeatedly listened to for confirmation. These disadvantages contrast with news reports using printed matter, such as newspapers. In the case of newspapers, it is possible to pick up only information that information recipients want, from among a variety of fields. In addition, the recipients can read them at a time convenient to them, and it is possible to reread them any number of times for confirmation.

[0004]

The object of the present invention is to provide an audio information transmission system that makes use of the advantages of audio information, solves the above disadvantages, and in which it is possible for recipients to select only information they desire and replay it any number of times at any desired time.

[0005]

[Means for Solving the Problem]

The above described disadvantages can be solved by employing an information transmission system employing a rewritable optical disk characterized in that, in an information transmission system between an information provider that provides audio information and a plurality of information recipients, the information provider classifies audio information on an item by item basis, the audio information is transmitted to the information recipients in a form compressed at a time shorter than required for audio playback, the information recipients receive the thus transmitted audio information by means of a receiver, the audio information is temporarily recorded in a rewritable optical disk by means of an optical disk recording device, and only items selected from among items of audio information are replayed at a desired time by employing an optical disk playback device.

[0006]

[Function]

FIG. 1 shows the flow of information in an information transmission system using this scheme. Information providers are typically newspaper publishers or broadcasters. Audio information is input by recording a human voice, or by converting audio synthesized by a machine to electrical signals. These audio signals are classified on an item by item basis according to their contents, and the items are listed on a menu. Each menu item is classified into more detailed submenus, thereby making it possible to produce a plurality of levels such

as children menus or grandchildren menus. Furthermore, if some keywords are extracted from among items of information, and the keyword information is added to a specific position within the signalized audio information, it is possible to search specific matters and associated information irrespective of the menu positions.

[0007]

The thus edited audio information is transmitted by information providers using a transmitter. This transfer means may include a method employing television radio waves such as UHF and VHF, a transfer method using microwaves via communication satellites, or a transfer method through wired TV cables or the like. Additionally, if a dedicated channel is used for these respective transmission methods, and if the transmission is multiplexed on TV broadcast waves and sent as back-channel audio, the transmission could occupy a channel during TV broadcast off-air time late at night.

[0008]

Upon transfer of the audio information, the audio information is sent in a time-compressed format. That is, transfer is completed within a shorter time than the time required for replaying as audio all of the audio information transmitted. This time compression can be performed by a method of simply sending analog audio waveforms in a fast mode, a method of temporarily digitizing and sending information at high speed, or a method of sending a plurality of audio information while multiplexing them simultaneously.

[0009]

The thus sent audio information is received by means of a receiver at the home of an information recipient, and the received audio information is stored in a rewritable optical disk by means of an optical disk recording device. The receiver and optical disk recording device can be integrated in a single unit of equipment, or can be incorporated in a conventional TV broadcast receiver. At this time, if a function of detecting a menu or a keyword of a transmitted signal and automatically recording only the item(s) registered by the recipient in advance in the rewritable optical disk is additionally provided to the receiver or optical disk recording device, the limited recording capacity of the optical disk can be utilized more efficiently without acquiring unnecessary information.

[0010]

The thus transmitted audio information is played back as audio information by using an optical disk playback device. A magneto-optical disk playback device exclusively used for playback can be made more compact, so it can be made into a portable device, thus making it possible to perform playback in a train, or listen to audio information replayed while driving with it being mounted on a vehicle. The playback device has a function of allowing selection of required items from level-based menus, making it possible to pick up only information that a recipient is interested in and replaying it. The playback device also allows attachment of an image

monitor. In this case, it is possible to display which item on a menu has been selected, using characters on a screen, or display a still image sent from an information provider.

[0011]

The rewritable optical disk can be repeatedly used, so by using one or two disks, it is possible to utilize this information system for a long time. In addition, in this system, the disk rewriting count is several thousands times at the most, so the optical disk to be used would be sufficient if it guarantees rewriting on the order of ten thousand times.

[0012]

[Embodiments] Embodiment 1

In the present embodiment, the information provider is a broadcaster that provides audio information, mainly news information. General news is recorded from a human voice, and a fixed format such as weather forecast or stock market information is inputted by utilizing mechanical voice synthesizing. In addition, other than news, audio information includes content with less immediacy, such as music, dramas, entertainment, or English language courses. These types of audio information are classified on an item-by-item basis according to their content, and are managed with a menu shown in FIG. 2. Large menu items largely follow the classification of content as found in newspapers. The respective menus are divided into detailed submenus, and a plurality of levels, such as children menus or grandchildren menus, are produced. In the case of news, more detailed

information, such as titles, summaries, and details relating to the items, can be obtained as the menu level goes down, whereby the recipients can arbitrarily select a degree of details of obtained information according to the recipient's depth of interest. In the case of music, classification on a style-by-style basis is provided as a submenu, and further, titles and performance become available as the menu level goes down.

[0013] The thus edited audio information is transmitted from a broadcaster to an information recipient. At this time, audio information is sent to a relay point via a communication satellite by means of microwaves, from where the transmitted audio information is propagated to each home through wired TV cables. This transfer is sent wherein a channel is occupied during late-night TV broadcast off-air time. Here, the audio information is temporarily digitized and sent at high speed, whereby transfer is performed in a time-compressed format. The audio information is stored on a 3.5-inch magneto-optical disk using a receiver/magneto-optical disk recording device at the home of an information recipient. In this way, news transmission is performed from night time to morning, and thus, the audio information is delivered to each home by the next morning. In addition, this receiver/optical disk recording device can use the limited recording capacity of an optical disk efficiently because it has a function for selectively recording on the optical disk the menu items and keyword associated information registered by the recipient in advance.

[0014] In this manner, the magneto-optical disk having recorded news information recorded therein is moved to a compact optical disk playback device, and is played back as audio. This playback-only device can be made compact, thus making it possible to use as a portable device or mount it on a vehicle. In the case where the playback device is used as a portable device, even in a crowded place such as train, one can listen to audio without bothering persons around him or her, by employing earphones. In addition, when the playback device is mounted on a vehicle, one can listen to replayed audio information while driving.

[0015] FIG. 3 shows an external view diagram of the optical disk playback device used in the embodiment. The optical disk is inserted in an insert port 1. A liquid crystal display panel 2 displays which item on a menu has been selected. In addition, a still image sent from a broadcasting station can be displayed on this monitor. Control buttons 3 include the operating buttons (Replay), (Stop), (Fast Feed), and (Rewind), which relate to audio playback, and the operating buttons (Select Current Item), (Proceed to Next Item), (Back to Previous Item), and (Back to Upper-Level Menu), which relate to item selection on a menu. Replayed audio can be listened to by connecting to earphone plug 4. The volume is controlled by means of a volume knob 5.

[0016]

[Effect of the Invention]

According to the present invention, it is possible to perform information transmission to the public, speedily and in detail; an information recipient can obtain only the information desirable to one's self, at one's preferred time, and it is possible to confirm information as many times as required.

BRIEF EXPLANATION OF THE DRAWINGS

[FIG. 1] FIG. 1 is a conceptual view of the flow of audio information in an information transmission system according to the present invention.

[FIG. 2] FIG. 2 is the menu structure according to embodiment 1.

[FIG. 3] FIG. 3 is an external view of an optical disk playback device for use according to embodiment 1.

[Explanation of References]

1... Optical disk insert port 2... Liquid crystal display panel 3... Control buttons

4... Earphone plug 5... Volume knob

FIG. 1

Information provider (broadcasting station)

Audio signal input

Item classification

Signal compression

Transmitter

Wired or wireless broadcasting

At home

Receiver

Optical disk recording device

Rewritable optical disk

Portable optical disk playback device

Replayed audio information

Information recipient

FIG. 2

News	Important news	Title of item 1	Summary of item 1	Details of item 1
		Title of item 2	Summary of item 2	Details of item 2
	Politics			
	Economy			
	International			
	Economy			

Society				
Science				
Industry				
Entertainment				
Others	Music	Classic	Title of music number 1	Performance of music number 1
			Title of music number 2	Performance of music number 2
		Pop Music		
		Japanese Pop Music		
English language course		Contents of English language course		

TRANSPERFECT

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ATLANTA
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BARCELONA
BOSTON
BRUSSELS
CHARLOTTE
CHICAGO
DALLAS
DENVER
DUBLIN
FRANKFURT
GENEVA
HONG KONG
HOUSTON
IRVINE
LONDON
LOS ANGELES
MIAMI
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MUNICH
NEW YORK
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PORTLAND
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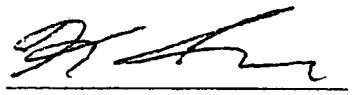
SAN FRANCISCO
SAN JOSE
SEATTLE
SINGAPORE
STOCKHOLM
SYDNEY
TOKYO
TORONTO
WASHINGTON, DC

City of New York, State of New York, County of New York

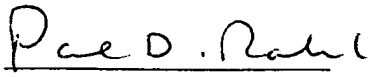
I, Kayoko Imori, hereby certify that the following is, to the best of my knowledge and belief, a true and accurate translation of the following document, "Japanese Unexamined Patent Application Publication H4-310631," from Japanese into English.



Kayoko Imori

Sworn to before me this

17th day of January, 2008



Signature, Notary Public

PAUL D. RALSTON
Notary Public, State of New York
No. 01RA6023867
Qualified in Queens County
Commission Expires May 3, 20 11

Stamp, Notary Public
State of New York

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[Field of Industrial Use]

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[0002] [Prior Art]

Audio, video and printed matter systems are used as systems for transmitting information to a large number of people. Among them, audio information transmission has an advantage over video images or printed matter in that information can be received in limited space, with simple equipment, and while doing other work. For example, audio information transmission using a radio is the most convenient means for obtaining information such as news in a crowded train or while driving a vehicle.

[0003] [Objects the Invention]

However, radio broadcasting, which is a

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conventional audio information transmission system, has suffered from the following disadvantage. That is, it is impossible to select only information on fields in which individual information recipients are interested, and thus, the information is limited to very general topics. Assuming that detailed information is to be included in a broadcast, a large amount of time would be required for one broadcast. From among the information broadcast, the information recipients must wait for a long time until the information that they want to listen to is broadcasted. This situation is inefficient for the recipient. Furthermore, information is sent only at times determined unilaterally, when the broadcast station desires. The information that they listened to cannot be repeatedly listened to for confirmation. These disadvantages contrast with news reports using printed matter, such as newspapers. In the case of newspapers, it is possible to pick up only information that information recipients want, from among a variety of fields. In addition, the recipients can read them at a time convenient to them, and it is possible to reread them any number of times for confirmation.

[0004]

The object of the present invention is to provide an audio information transmission system that makes use of the advantages of audio information, solves the above disadvantages, and in which it is possible for recipients to select only information they desire and replay it any number of times at any desired time.

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[Means for Solving the Problem]

The above described disadvantages can be solved by employing an information transmission system employing a rewritable optical disk characterized in that, in an information transmission system between an information provider that provides audio information and a plurality of information recipients, the information provider classifies audio information on an item by item basis, the audio information is transmitted to the information recipients in a form compressed at a time shorter than required for audio playback, the information recipients receive the thus transmitted audio information by means of a receiver, the audio information is temporarily recorded in a rewritable optical disk by means of an optical disk recording device, and only items selected from among items of audio information are replayed at a desired time by employing an optical disk playback device.

[0006]

[Function]

FIG. 1 shows the flow of information in an information transmission system using this scheme. Information providers are typically newspaper publishers or broadcasters. Audio information is input by recording a human voice, or by converting audio synthesized by a machine to electrical signals. These audio signals are classified on an item by item basis according to their contents, and the items are listed on a menu. Each menu item is classified into more detailed submenus, thereby making it possible to produce a plurality of levels such

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as children menus or grandchildren menus. Furthermore, if some keywords are extracted from among items of information, and the keyword information is added to a specific position within the signalized audio information, it is possible to search specific matters and associated information irrespective of the menu positions.

[0007]

The thus edited audio information is transmitted by information providers using a transmitter. This transfer means may include a method employing television radio waves such as UHF and VHF, a transfer method using microwaves via communication satellites, or a transfer method through wired TV cables or the like. Additionally, if a dedicated channel is used for these respective transmission methods, and if the transmission is multiplexed on TV broadcast waves and sent as back-channel audio, the transmission could occupy a channel during TV broadcast off-air time late at night.

[0008]

Upon transfer of the audio information, the audio information is sent in a time-compressed format. That is, transfer is completed within a shorter time than the time required for replaying as audio all of the audio information transmitted. This time compression can be performed by a method of simply sending analog audio waveforms in a fast mode, a method of temporarily digitizing and sending information at high speed, or a method of sending a plurality of audio information while multiplexing them simultaneously.

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[0009]

The thus sent audio information is received by means of a receiver at the home of an information recipient, and the received audio information is stored in a rewritable optical disk by means of an optical disk recording device. The receiver and optical disk recording device can be integrated in a single unit of equipment, or can be incorporated in a conventional TV broadcast receiver. At this time, if a function of detecting a menu or a keyword of a transmitted signal and automatically recording only the item(s) registered by the recipient in advance in the rewritable optical disk is additionally provided to the receiver or optical disk recording device, the limited recording capacity of the optical disk can be utilized more efficiently without acquiring unnecessary information.

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[0010]

The thus transmitted audio information is played back as audio information by using an optical disk playback device. A magneto-optical disk playback device exclusively used for playback can be made more compact, so it can be made into a portable device, thus making it possible to perform playback in a train, or listen to audio information replayed while driving with it being mounted on a vehicle. The playback device has a function of allowing selection of required items from level-based menus, making it possible to pick up only information that a recipient is interested in and replaying it. The playback device also allows attachment of an image

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monitor. In this case, it is possible to display which item on a menu has been selected, using characters on a screen, or display a still image sent from an information provider.

[0011]

The rewritable optical disk can be repeatedly used, so by using one or two disks, it is possible to utilize this information system for a long time. In addition, in this system, the disk rewriting count is several thousands times at the most, so the optical disk to be used would be sufficient if it guarantees rewriting on the order of ten thousand times.

[0012]

[Embodiments] Embodiment 1

In the present embodiment, the information provider is a broadcaster that provides audio information, mainly news information. General news is recorded from a human voice, and a fixed format such as weather forecast or stock market information is inputted by utilizing mechanical voice synthesizing. In addition, other than news, audio information includes content with less immediacy, such as music, dramas, entertainment, or English language courses. These types of audio information are classified on an item-by-item basis according to their content, and are managed with a menu shown in FIG. 2. Large menu items largely follow the classification of content as found in newspapers. The respective menus are divided into detailed submenus, and a plurality of levels, such as children menus or grandchildren menus, are produced. In the case of news, more detailed

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information, such as titles, summaries, and details relating to the items, can be obtained as the menu level goes down, whereby the recipients can arbitrarily select a degree of details of obtained information according to the recipient's depth of interest. In the case of music, classification on a style-by-style basis is provided as a submenu, and further, titles and performance become available as the menu level goes down.

[0013] The thus edited audio information is transmitted from a broadcaster to an information recipient. At this time, audio information is sent to a relay point via a communication satellite by means of microwaves, from where the transmitted audio information is propagated to each home through wired TV cables. This transfer is sent wherein a channel is occupied during late-night TV broadcast off-air time. Here, the audio information is temporarily digitized and sent at high speed, whereby transfer is performed in a time-compressed format. The audio information is stored on a 3.5-inch magneto-optical disk using a receiver/magneto-optical disk recording device at the home of an information recipient. In this way, news transmission is performed from night time to morning, and thus, the audio information is delivered to each home by the next morning. In addition, this receiver/optical disk recording device can use the limited recording capacity of an optical disk efficiently because it has a function for selectively recording on the optical disk the menu items and keyword associated information registered by the recipient in advance.

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[0014] In this manner, the magneto-optical disk having recorded news information recorded therein is moved to a compact optical disk playback device, and is played back as audio. This playback-only device can be made compact, thus making it possible to use as a portable device or mount it on a vehicle. In the case where the playback device is used as a portable device, even in a crowded place such as train, one can listen to audio without bothering persons around him or her, by employing earphones. In addition, when the playback device is mounted on a vehicle, one can listen to replayed audio information while driving.

[0015] FIG. 3 shows an external view diagram of the optical disk playback device used in the embodiment. The optical disk is inserted in an insert port 1. A liquid crystal display panel 2 displays which item on a menu has been selected. In addition, a still image sent from a broadcasting station can be displayed on this monitor. Control buttons 3 include the operating buttons (Replay), (Stop), (Fast Feed), and (Rewind), which relate to audio playback, and the operating buttons (Select Current Item), (Proceed to Next Item), (Back to Previous Item), and (Back to Upper-Level Menu), which relate to item selection on a menu. Replayed audio can be listened to by connecting to earphone plug 4. The volume is controlled by means of a volume knob 5.

[0016]

[Effect of the Invention]

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According to the present invention, it is possible to perform information transmission to the public, speedily and in detail; an information recipient can obtain only the information desirable to one's self, at one's preferred time, and it is possible to confirm information as many times as required.

BRIEF EXPLANATION OF THE DRAWINGS

[FIG. 1] FIG. 1 is a conceptual view of the flow of audio information in an information transmission system according to the present invention.

[FIG. 2] FIG. 2 is the menu structure according to embodiment 1.

[FIG. 3] FIG. 3 is an external view of an optical disk playback device for use according to embodiment 1.

[Explanation of References]

1... Optical disk insert port 2... Liquid crystal display panel 3... Control buttons 4... Earphone plug 5... Volume knob

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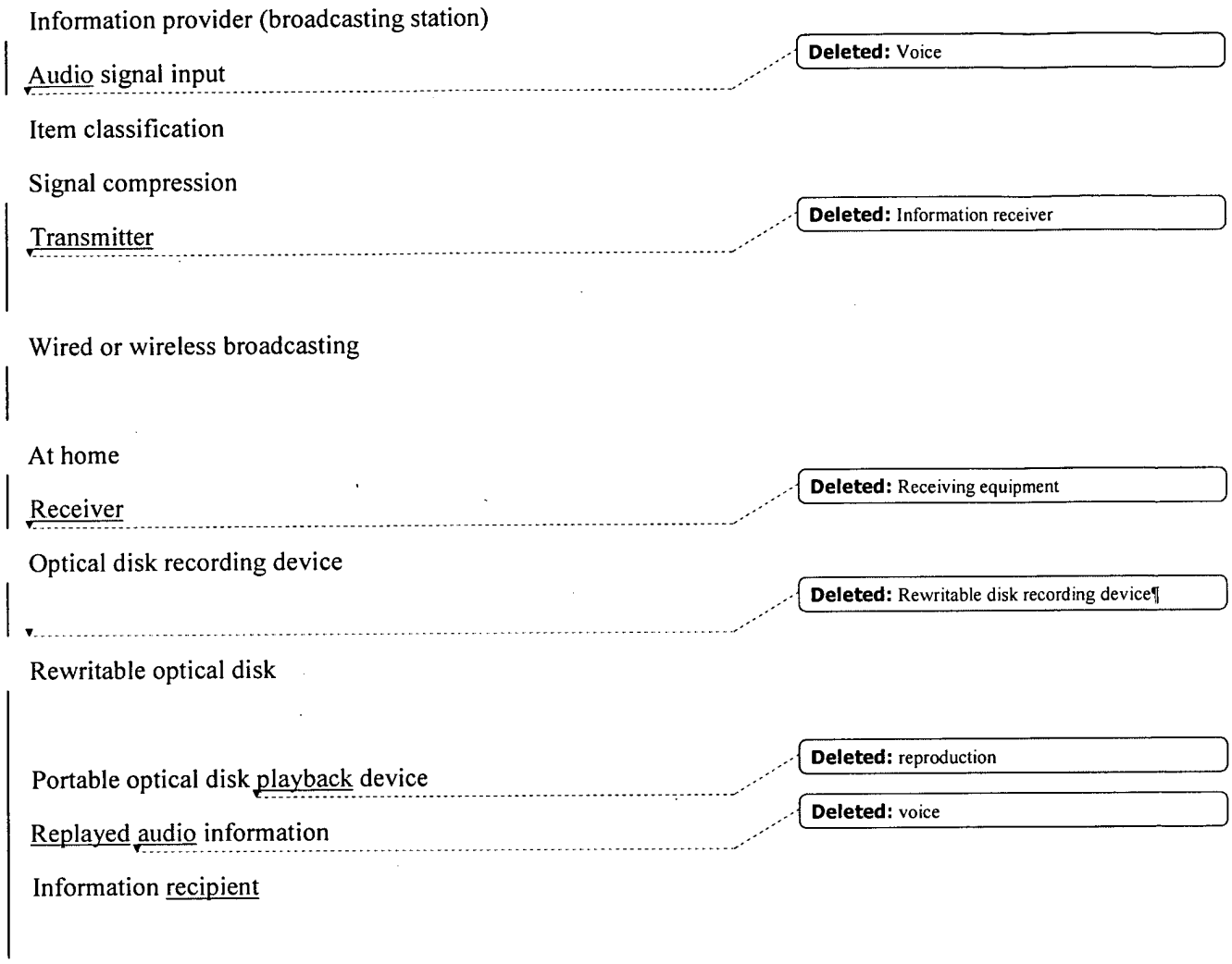
FIG. 1


Information provider (broadcasting station)
Audio signal input
Item classification
Signal compression
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Wired or wireless broadcasting
At home
Receiver
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Rewritable optical disk
Portable optical disk playback device
Replayed audio information
Information recipient
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FIG. 2

News___Important news _Title of item 1__Summary of item 1__Details of item 1

__Title of item 2__Summary of item 2__Details of item 2

Politics

Economy

International

Economy

Society

Science

Industry

Entertainment

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